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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/613,449

07/03/2003

Steven W. Utt

23242-07464

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11/30/2005

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EXAMINER

BODDIE, WILLIAM

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/613,449	<b>Applicant(s)</b> UTT ET AL.	
	<b>Examiner</b> William Boddie	<b>Art Unit</b> 2674	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of claims 1-28 in the reply filed on 10/24/2005 is acknowledged.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 18-19, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900).

With respect to claim 1, Young discloses, a display system comprising: a display surface having a three-dimensional convex shape (53 in fig. 5); and a projection system for projecting an object field onto a continuous image filed on an interior of the display surface (note fig. 8 and fig. 9a).

Young does not expressly disclose wherein a ratio of a longest image distance to a shortest image distance is at least 1.75.

This range limitation, however, is obviously achieved when considering the figures of Young, also this limitation does not increase the patentability of this claim as a ratio of 1.75 or larger is the optimum range. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover

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the optimum or workable ranges by routine experimentation." In re Aller, 220

F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

**With respect to claims 2 and 3**, Young discloses a display system in figures that has an image field that would satisfy both limitations (note ray 191 in fig. 9a). Also once again this limitation does not increase the patentability of these claims as an angle of at least 240 degrees or more is the optimum range of such a display system. "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

**With respect to claim 4**, Young discloses, the display system of claim 2 (see above), wherein the display surface is approximately spherical (85 in fig. 8).

**With respect to claim 5**, Young disclose, the display system of claim 4 (see above) wherein the display surface is translucent (col. 6, lines 19-24).

**With respect to claim 6**, Young discloses, the display system of claim 2 (see above), wherein the display surface includes an aperture (surrounding the lens 193 in fig. 9a), and the image field covers substantially the entire interior of the display surface exclusive of the aperture (note ray 191 in fig. 9a).

**With respect to claim 7**, Young discloses, the display system of claim 6 (see above) further comprising: a physical support for the display surface, wherein the physical support hides the aperture from view (70 and 74 in fig. 7).

**With respect to claim 18**, Young discloses, the display system of claim 2 (see above) wherein the display surface comprises multiple materials (col. 9,

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lines 46-48, discloses coating the nylon balloon with a second polymer material to prevent leaks.)

**With respect to claim 19**, Young discloses, the display system of claim 2 (see above) wherein the display surface is seamless (col. 2, lines 24-25, discloses both a seamless surface (integral) or a tiled surface).

**With respect to claim 25**, Young discloses, the display system of claim 2 (see above), wherein the display surface is spheroid in shape (85 in fig. 8).

**With respect to claim 27**, Young discloses, the display system of claim 2 (see above) wherein the interior of the display surface is approximately in the shape of a rectangular solid (col. 1, line 63, discloses the possibility of another geometric shape being used).

4. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Ligon (US 6,409,351).

**With respect to claim 8**, Young discloses, the display system of claim 6 (see above).

Young does not expressly disclose, wherein the projection system has an optical axis that enters the interior of the display surface via the aperture.

Ligon discloses, a projection system (18 in fig. 1) with an optical axis that enters the interior of the display surface (14 in fig. 1) via an aperture (40 in fig. 1).

Ligon and Young are analogous art because they are from the same field of endeavor namely, wide-angle projection systems.

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At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the laser projection system of Young with the video projectors of Ligon.

The motivation for doing so would have been for reasons of cost. Laser projection systems cost significantly more than the simple projection systems of Ligon.

Therefore it would have been obvious to combine Ligon and Young for the benefit of cost to obtain the invention as specified in claim 8.

**With respect to claim 9**, Ligon and Young disclose, the display system of claim 8 (see above).

While Young does not explicitly disclose that the projection system's optical axis is tilted relative to vertical this would have merely been a design choice in Young's invention. The connection between the laser and the rest of the display technology is a flexible cable (13 in fig. 3). Therefore it would have been an obvious design choice to tilt the spherical display of Young in various angles.

5. Claims 10, 16, 29-37, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Shimizu (US 3,737,214).

**With respect to claim 10**, Young discloses, the display system of claim 2 (see above).

Young does not expressly disclose, wherein the projection system comprises: a lens system for projecting a virtual object field.

Shimizu discloses a lens array (fig. 1) that is substantially equivalent to the applicant's lens system (fig. 9a) all the properties of the applicant's lens system would thus inherently be properties of Shimizu's lens array. Therefore Shimizu's lens array is inherently capable of projecting a virtual object field.

Shimizu and Young are analogous art because they are directed to a similar problem solving area, namely wide angle optically systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the lens system of Young with the lens system of Shimizu.

The motivation for doing so would have been the simplicity and efficiency of Shimizu's lens system (Shimizu, col. 4, lines 38-39).

Therefore it would have been obvious to combine Shimizu and Young for the benefit of simplicity to obtain the invention as specified in claim 10.

**With respect to claim 16**, Young and Shimizu disclose, the display system of claim 10 (see above).

Young further discloses, wherein the virtual object field is generated by a projector (projector base unit, 11 in fig. 3) and the lens system is adapted to be mechanically attached to the projector (note the attachment cable between the lens system (12 in fig. 3) and the base unit).

**With respect to claim 29**, Young discloses, the display system of claim 1 (see above) and the image field is a continuous image field having a three-dimensional convex shape (fig. 8) with a ratio of a longest image distance to a shortest image distance is at least 1.75 (see above).

Young does not expressly disclose, wherein the projection system comprises: a lens system for projecting the object field onto the continuous image field, wherein the object field is a virtual, flat object field.

Shimizu discloses, a lens system (fig. 1), which is equivalent to applicant's lens system (fig. 9a). Shimizu also discloses a flat object field (image in fig. 1).

**With respect to claims 30 and 31**, Young and Shimizu disclose, the display system of claim 29 (see above).

While neither Young nor Shimizu disclose the image field subtending to an angle of at least 240 degrees, it is obvious from drawings (Young: fig. 10; Shimizu: 10 in fig 1) that this would have been an optimum range for their inventions. As recited earlier, "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Therefore claims 29 and 30 are seen as obvious in view of the prior art.

**With respect to claim 32**, Shimizu and Young disclose, the display system of claim 30 (see above).

Young further discloses, wherein the image field is substantially closed around a last clear surface of the lens system (note the edges of figs. 9-11).

**With respect to claim 33**, Shimizu and Young disclose, the display system of claim 30 (see above).

Young further discloses, wherein the image field is approximately spherical (fig. 8).



**With respect to claim 34,** Shimizu and Young disclose, the display system of claim 30 (see above).

Shimizu further discloses, wherein ray bundles destined for a full-field image point exit a last clear surface of the lens system at an angle that is substantially perpendicular to an optical axis of the lens system (note the exit angle of 10 in fig. 1).

**With respect to claim 35,** Shimizu and Young disclose, the display system of claim 30 (see above).

As Shimizu's lens array (fig. 1) is substantially equivalent to the applicant's lens system (fig. 9a) all the properties of the applicants lens system would inherently also be properties of Shimizu's lens array. Therefore Shimizu's lens system inherently corrects chromatic aberration.

**With respect to claim 36,** Young and Shimizu disclose, the display system of claim 30 (see above).

Shimizu further discloses, that at least one lens has an aspheric surface (note lens, d11 in fig. 1, and its infinite radius of curvature in the table in col. 3).

**With respect to claim 37,** Young and Shimizu disclose, the display system of claim 36 (see above).

Shimizu further discloses, wherein the at least one aspheric surface (d11 for example) significantly changes an image distance to an image point, as a function of field height of the image point (note the ray diagram in fig. 1 and the tightening of the ray bundles upon exit of d11).

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**With respect to claim 39**, Shimizu and Young disclose, the display system of claim 30 (see above).

Shimizu further discloses a lens group with negative power for increasing an exit angle between an optical axis of the lens system and a ray destined for an image point, as a field height of the image point increases (L1- L3, in fig. 1).

**With respect to claim 40**, Shimizu and Young disclose, the display system of claim 39 (see above).

Shimizu further discloses wherein, within the lens group, a footprint of a ray bundle destined for an apex image point does not overlap with a footprint of a ray bundle destined for a full field image point (note the separate ray bundles in fig. 1, that do not overlap after L5).

**With respect to claim 41**, Shimizu and Young disclose, the display system of claim 39 (see above).

Shimizu further discloses, wherein lenses in the lens group have a flat surface around their rims so that the lenses are properly positioned when the flat surfaces contact each other (see lens rims in fig. 1).

6. Claims 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Shimizu (US 3,737,214) and further in view of Bacs, Jr. et al (US 5,546,139).

**With respect to claim 11**, Young and Shimizu disclose, the display system of claim 10 (see above).

Young further discloses a projector optically coupled to the lens system (13 in fig. 3).

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Neither Young nor Shimizu disclose, the projector also projects the object field onto a flat image field, wherein the object field for the projector is flat and the flat image field for the projector serves as the virtual object field for the lens system.

Bacs, Jr. discloses, a projector (38,30,28,18,17,10 in fig. 2) and a lens array (40 in fig. 2). As can be seen in fig. 3, a flat object field (the output of the flattening array) is projected onto a flat image field (39 in fig. 2) to serve as the virtual object field of the lens array (see also col. 8, lines 20-33).

Young, Shimizu, and Bacs, Jr. are all analogous art because they are directed to a similar problem solving area, namely wide-angle optical systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the projection unit of Young and Shimizu with the projector of Bacs, Jr.

The motivation for doing so would have been to improve the quality of the projected image (Bacs, Jr. col. 8, lines 7-10).

Therefore it would have been obvious to combine Bacs, Jr. with Young and Shimizu for the benefit of a higher quality projected image to obtain the invention as specified in claim 11.

**With respect to claim 17**, Young and Shimizu disclose, the display system of claim 10 (see above).

Neither Young nor Shimizu expressly discloses, wherein the projection system can accommodate display surfaces of varying size by varying a focus of the projector.

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Bacs, Jr. discloses, a focusing lens array (18 in fig. 2).

It would have been obvious to one of ordinary skill in the art to include a focusing lens array of Bacs, Jr. in the optical path of the projection unit of Young and Shimizu.

The motivation for doing so would have been to focus the projector (Bacs, Jr. col. 7, lines 4-5).

Therefore it would have been obvious to combine Bacs, Jr. with Young and Shimizu for the benefit of a focused image to obtain the invention as specified in claim 17.

7. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Shimizu (US 3,737,214) in view of Bacs, Jr. et al (US 5,546,139) and further in view of Ligon (US 6,409,351).

**With respect to claims 12-15**, Young, Shimizu, and Bacs, Jr. disclose, the display system of claim 11 (see above).

None of the previous references explicitly discloses, the types of display systems described in claims 12-15.

Ligon discloses, a three-dimensional display system that comprises a projector that can be a "film, digital or any other kind of projector for producing still or moving images" (col. 3, lines 59-61).

Young, Shimizu, Bacs, Jr., and Ligon are all analogous art because they are all directed to a similar problem solving area, namely wide-angle optical systems.

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At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the light source of Young, Shimizu, and Bacs, Jr. with a projector of Ligon's.

The motivation for doing so would have been to decrease the cost of the system, as digital projectors tend to be significantly lower cost than lasers.

Therefore it would have been obvious to combine Young, Shimizu, and Bacs, Jr., with Ligon for the benefit of cost to obtain the invention as specified in claims 12-15.

8. Claims 20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Idaszak et al (US 6,530,667).

**With respect to claim 20**, Young discloses, the display system of claim 2 (see above), and also that any geometric shape can be used to for the image field (col. 1, lines 62-63).

Young does not expressly disclose wherein the image field is axially asymmetric about an optical axis.

Idaszak discloses, an axially asymmetric image field (22 in fig. 12, col. 8, lines 35-40).

Idaszak and Young are analogous art because they are both from the same field of endeavor namely, wide-angle projection systems.

At the time of the invention, it would have been obvious to create axially asymmetric image fields on the geometric surfaces of Young.

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The motivation for doing so would have been to make the projection system adaptable to different display surfaces.

Therefore it would have been obvious to combine Young and Idaszak for the benefit of different shaped display surfaces to obtain the invention as specified in claim 20.

**With respect to claim 28**, Young discloses, the display system of claim 2 (see above).

Young does not expressly disclose, wherein the projection system generates an image suitable for stereoscopic display.

Idaszak discloses the projection system generates an image suitable for stereoscopic display (col. 7, lines 19-28).

At the time of the invention, it would have been obvious to generate images that are stereoscopic, as disclosed by Idaszak, for use in the display system of Young.

The motivation for doing so would have been to generate a three-dimensional effect to the user.

Therefore it would have been obvious to combine Young and Idaszak for the benefit of a 3D effect for the user to obtain the invention as specified in claim 28.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Jaulmes (US 4,464,029).

**With respect to claim 21**, Young discloses, the display system of claim 2 (see above).

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Young does not expressly disclose the object field is non-circular.

Jaulmes discloses an object field that is non-circular (fig. 3).

Young and Jaulmes are analogous art because they are from the same field of endeavor namely wide-angle projection systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the laser projection system of Young with the film projection system, with non-circular object fields, of Jaulmes.

The motivation for doing so would have been the much lower cost associated with film projection systems versus the cost of a laser projection system.

Therefore it would have been obvious to combine Jaulmes and Young for the benefit of cost to obtain the invention as specified in claim 21.

10. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Bacs, Jr. et al (US 5,546,139).

**With respect to claim 22**, Young discloses, the display system of claim 2 (see above) and projecting an object field onto a continuous image field on the interior of a display surface

Young does not expressly disclose wherein the object field is flat.

Bacs, Jr. discloses a scan field flattening lens array.

Young and Bacs, Jr. are analogous art because they are from the same field of endeavor namely, moving imagery projection systems.

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At the time of the invention, it would have been obvious to one of ordinary skill in the art to include the scan field flattening lens array of Bacs, Jr. in the lens array of Young.

The motivation for doing so would have been improve the quality of the projected image (Bacs, Jr. col. 8, lines 7-10).

Therefore it would have been obvious to combine Bacs, Jr. and Young for the benefit of a higher quality image to obtain the invention as specified in claim 22.

**With respect to claim 23**, Bacs, Jr. and Young disclose, the display system of claim 22 (see above).

Young further discloses, an object in the object field includes an electronically controlled display (fig. 3, and especially element 10, electronics control unit input into the projector base unit).

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Bacs, Jr. et al (US 5,546,139) and further in view of Ligon (US 6,409,351).

**With respect to claim 24**, Bacs, Jr. and Young disclose, the display system of claim 22 (see above).

Neither Bacs, Jr. nor Young disclose an object in the object field includes a film-based display.

Ligon discloses, a three-dimensional display system that comprises a projector that can be a "*film*, digital or any other kind of projector for producing still or moving images" (col. 3, lines 59-61).



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Ligon, Bacs, Jr. and Young are all analogous art because they are all directed to the same field of endeavor, moving imagery projection systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the projection unit of Young and Bacs, Jr. with a film projector of Ligon.

The motivation for doing so would have been that film projectors are significantly less expensive than the laser system of Young.

Therefore, it would have been obvious to combine Ligon with Bacs, Jr. and Young for the benefit of lower cost to obtain the invention as specified in claim 24.

12. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Courchesne (US 6,905,218).

**With respect to claim 26**, Young discloses, the display system of claim 2 (see above).

Young does not expressly disclose, wherein the interior of the display surface is reflective.

Courchesne discloses, wherein the interior of the display surface is reflective (fig. 9).

Courchesne and Young are analogous art because they are both directed to the same field of endeavor namely, spherical projection systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to construct the display system of Young for operation in the

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manner as taught by Courchesne, by making the display surface both large enough and reflective.

The motivation for doing so would have been to provide a sense of immersion to the user (Courchesne, col. 3, line 63).

Therefore it would have been obvious to combine Courchesne and Young for the benefit of a more immersive experience for the user to obtain the invention as specified in claim 26.

13. Claims 38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Shimizu (US 3,737,214) and further in view of Ikeda et al (US 6,560,041).

**With respect to claim 38**, Young and Shimizu disclose, the display system of claim 37 (see above).

Shimizu further discloses a footprint of a ray bundle destined for an apex image point does not overlap with a footprint of a ray bundle destined for a full field image point (note the ray diagram in fig. 1 at the surface of L5).

Neither Young nor Shimizu expressly discloses that the surface of L5 is aspheric.

Ikeda discloses, a lens system that is very similar to that of Shimizu. Ikeda also discloses, using aspherical surfaces on those lenses (col. 2, lines 31-41).

Young, Shimizu, and Ikeda are all analogous art because they are directed to a similar problem solving area namely, wide-angle optical systems.

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At the time of the invention, it would have been obvious to one of ordinary skill in the art to make the surface of L5 of the lens system of Shimizu and Young aspheric as taught by Ikeda.

The motivation for doing so would have been to correct distortion and chromatic aberration (Ikeda, col. 2, lines 34-37).

Therefore it would have been obvious to combine Ikeda with Young and Shimizu for the benefit of correcting aberration to obtain the invention as specified in claim 38.

**With respect to claim 42**, Young and Shimizu disclose, the display system of claim 30 (see above).

Shimizu further discloses, wherein the lens system comprises, in the following order along an optical axis: a first lens group located close to an aperture of the lens system (d11-d22), the first lens group correcting for chromatic aberration; a second lens group (L4, L5); and a third lens group with negative power for increasing an exit angle between the optical axis and a ray destined for an image point (L1, L2, L3), as a field height of the image point increases, wherein the second lens group acts as a partial field lens between the first lens group and the third lens group (as the lens array of Shimizu (fig. 1) is substantially equivalent to the lens system of the applicants (fig. 9a) the behavior of the optics is also equivalent.).

Neither Young nor Shimizu discloses, that the second lens group includes an aspheric surface, for significantly changing an image distance to an image point as a function of field height of the image point.

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Ikeda discloses, a lens system that is very similar to that of Shimizu.

Ikeda also discloses, using aspherical surfaces on those lenses (col. 2, lines 31-41).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to make the surface of L5 of the lens system of Shimizu and Young aspheric as suggested by Ikeda.

The motivation for doing so would have been to correct distortion and chromatic aberration (Ikeda, col. 2, lines 34-37).

Therefore it would have been obvious to combine Ikeda with Young and Shimizu for the benefit of correcting aberration to obtain the invention as specified in claim 42.

14. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Young et al. (US 6,698,900) in view of Shimizu (US 3,737,214) and further in view of Jaulmes et al (US 4,464,029).

**With respect to claim 43**, Young and Shimizu disclose, the display system of claim 30 (see above).

Neither Young nor Shimizu discloses, wherein the object field is asymmetric about an optical axis of the lens system.

Jaulmes discloses an object field that is non-circular (fig. 3).

Young, Shimizu and Jaulmes are analogous art because they are from the same field of endeavor namely wide-angle optical systems.

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At the time of the invention, it would have been obvious to one of ordinary skill in the art to replace the laser projection system of Young and Shimizu with the film projection system with non-circular object fields of Jaulmes.

The motivation for doing so would have been the much lower cost associated with film projection systems versus the cost of a laser projection system.

Therefore it would have been obvious to combine Jaulmes with Young, and Shimizu for the benefit of cost to obtain the invention as specified in claim 43.

### ***Conclusion***


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Will Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, call the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wlb  
11-14-05



PATRICK N. EDOUARD  
SUPERVISORY PATENT EXAMINER